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## Neighborhood disadvantage as a moderator of the association between harsh parenting and toddler-aged children's internalizing and externalizing problems

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### Abstract

Neighborhood dangerousness and belongingness were expected to moderate associations between harsh parenting and toddler-aged children's problem behaviors. Fifty-five predominantly African American mothers participated with their 2-year old children. Neighborhood danger, neighborhood belongingness, and children's problem behaviors were measured with mothers' reports. Harsh parenting was measured with observer ratings. Analyses considered variance common to externalizing and internalizing problems, using a total problems score, and unique variance, by controlling for internalizing behavior when predicting externalizing behavior, and vice-versa. Regarding the common variance, only the main effects of neighborhood danger and harsh parenting were significantly associated with total problem behavior. In contrast, after controlling for externalizing problems, the positive association between harsh parenting and unique variance in internalizing problems became stronger as neighborhood danger increased. No statistically significant associations emerged for the models predicting the unique variance in externalizing problems or models considering neighborhood belongingness.

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Multiple features of children's environment, such as the quality of the parenting they experience and characteristics of the neighborhood in which they live, have been directly linked to children's risk for maladjustment (e.g., Beyers, Bates, Pettit, & Dodge, 2003; Spelke, Unikel, & Shaw, 2007). Ecological approaches propose that environmental

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contexts do not operate in isolation but rather interact to influence behavioral adjustment. Accordingly, the impact of the quality of parenting that a child experiences may vary as a function of the neighborhood context (Bronfenbrenner, 1986). Empirical evidence largely supports an ecological approach and suggests that both neighborhood disadvantage and parenting quality directly and interactively influence risk for problem behaviors (e.g., Beyers, et al., 2003; Supplee, Unikel, & Shaw, 2007). The vast majority of this work has considered the impact of neighborhood disadvantage and harsh parenting on risk for externalizing problems during middle childhood and early adolescence, with far fewer studies considering the early childhood period (see Supplee, Unikel, & Shaw, 2007 for notable exceptions) or internalizing problems. Early childhood, and the toddler period in particular, may be an important period to study because behavior problems typically emerge during this developmental period and elevated levels of internalizing and externalizing problem behaviors have been linked to variations in negative parental control (e.g., Gilliom & Shaw, 2004).

We considered two components of neighborhood disadvantage, namely neighborhood dangerousness and felt belongingness, as environmental characteristics which may amplify or attenuate the association between harsh parenting and levels of internalizing and externalizing problems during the toddler years. Although environments outside of the home are generally assumed to have minimal impact on toddler-aged children's adjustment as compared to later developmental periods (e.g., Schonberg & Shaw, 2007), the validity of this assumption is questioned in the present study. The following sections first consider the developmental significance of elevated levels of problem behaviors during the toddler period and the impact of harsh parenting on children's internalizing and externalizing behaviors. Those two sections are followed by a consideration of how characteristics of the neighborhood may amplify or attenuate expected associations between harsh parenting and toddler-aged children's problem behaviors.

### **Causes and Consequences of Problem Behaviors during Early Childhood**

Rapid changes in children's cognitive, language, locomotion, and social development occur during early childhood. The toddler period (i.e., ages 1–3) is noted for dramatic increases in children's independence and exploration, language acquisition (Ainsfeld, 1984), emotional and behavioral regulation (Kopp, 1989), and compliance (Kochanska, 1995). In addition to emerging competencies, the toddler period is noted for increases in children's willful defiance (Kochanska, 1995) and bouts of unregulated anger (Shaw & Bell, 1993). Developmentally, externalizing problems appear earlier than internalizing problems. Externalizing problems peak during the toddler years and decline thereafter (Gilliom & Shaw, 2004). Internalizing problems increase more gradually and peak during the preschool years (Kaslow, Brown, & Mee, 1994; Vasey, Crnic, & Carter, 1994). Serious and chronic internalizing and externalizing problems often originate in the toddler period (e.g., Gilliom & Shaw, 2004).

Interestingly, both internalizing and externalizing problems tend to co-occur such that children who are rated high on internalizing problems also tend to be rated high on externalizing problems. For instance, the NICHD Early Child Care study reported a very strong ( $r = .71$ ) correlation between internalizing and externalizing problems at age 3 (McCartney, Owen, Booth, Clark-Stewart, & Vandell, 2004), suggesting substantial overlap in problem behaviors during early childhood. When both internalizing and externalizing problems are analyzed as separate dependent variables without controlling for the covariation between the scores, researchers run the risk of repeatedly predicting the common variance rather than independently predicting variance that is unique to each problem domain. In the present study, we consider both the common variance associated with internalizing and externalizing, by using a total problem behavior score which reflects the

sum of both internalizing and externalizing problems, and the unique variance by controlling for the co-variation of internalizing and externalizing problems.

An abundance of empirical evidence has linked parenting characteristics to elevated levels of problem behaviors during the toddler years (e.g., Gilliom & Shaw, 2004). Exposure to harsh parenting, or parenting that is emotionally negative (i.e., angry and hostile) and behaviorally intrusive and controlling, during early childhood is thought to increase children's risk for adjustment problems during later developmental periods for two reasons. First, over-reliance on harsh and controlling parenting during early childhood fails to model and teach children emotional and behavioral control (e.g., Dix, 1991; Scaramella & Leve, 2004). Consistent with this expectation, harsh parenting has been linked to higher levels of externalizing behavior problems during early childhood (e.g., Gilliom & Shaw, 2004; Scaramella, Conger, Neppel, & Ontai, 2008; Silk, Sessa, Morris, Steinberg, & Avenevoli, 2004) and middle childhood (e.g., Campbell, 1995; Patterson, Reid, Dishion, 1992; Pettit, Laird, Dodge, Bates, & Criss, 2001; Rothbaum & Weisz, 1994; Shaw, et. al, 1998).

Second, harsher parenting is distressing for children and may increase children's feelings of anxiousness, wariness, and unease. Over time, repeated exposure to harsh and controlling parenting may increase children's risk for developing internalizing problems. Consistent with this perspective, parenting high in negative affectivity and control (Gilliom & Shaw, 2004; Karreman, de Haas, van Tuijl, van Aken, & Dekovic, 2010) or parenting that is overly-involved and lacks warmth (Bayer, Sanson, & Hemphill, 2006) has been found to predict internalizing problems among toddler and preschool-aged children. Moreover, high rates of maternal negative control precede developmental increases in internalizing problems (Gilliom & Shaw, 2004). The extent to which characteristics of the neighborhood condition the impact of harsh parenting on children's risk for internalizing and externalizing problems during early childhood is rarely considered.

### **Neighborhood Disadvantage as a Risk Factor for Childhood Problem Behavior: Direct and Interactive effects**

Disadvantaged neighborhoods are typically characterized by high levels of poverty, unemployment, social disorganization, and danger/crime as well as low levels of belongingness and social cohesion (e.g., Ingoldsby & Shaw, 2002). Homes within disadvantaged neighborhoods are often in a much greater state of disrepair than homes in more affluent neighborhoods and homes in disadvantaged neighborhoods often lack insulation and central air conditioning (Evans, 2006). Families with central air conditioning also are less able to afford to use it (Evans, 2006). As a result, families and children may spend large portions of their days outside, on front or back porches, or with doors and windows open. Since young children are not required to attend school, open access to the neighborhood provides multiple opportunities for parents and children to directly witness activities of the street and to interact with others in the neighborhood.

Neighborhood characteristics often are assumed to have a negligible impact on children's adjustment until children are old enough to play outside without close adult supervision (e.g., Patterson, Reid, & Dishion, 1992). Consistent with this expectation, Winslow and Shaw (2007) found that neighborhood disadvantage did not directly affect boys' levels of problem behaviors until age 6. In contrast, Linares and colleagues (2001) demonstrated a significant direct effect of community violence on children's problem behavior during the preschool years (ages 3 to 6) that was mediated by mothers' psychological distress. Parents' ability to fully shield their very young children from the risks associated with neighborhood disadvantage may be limited. Repeated exposure to dangerous and unpredictable events may desensitize both parents and children to the violence of the neighborhood and, over time

parents may become less vigilant in protecting their young children from witnessing these events (Dunn, Schaeffer-McDaniel, & Ramsay, 2010).

In the present study, we argue that neighborhood characteristics, specifically neighborhood danger and felt belongingness, will moderate the association between harsh parenting and children's internalizing and externalizing problems. The rationale for a moderating effect of neighborhood danger will be described first. Exposure to dangerous and frightening neighborhood events is expected to exacerbate the association between harsh parenting and internalizing problems. During the infancy and toddler years, children frequently reference parents, particularly mothers, during ambiguous or frightening situations (i.e., social referencing). Mothers' affective tone during these ambiguous situations provides children with critical information as to how children interpret an ambiguous situation (e.g., Gunnar & Stone, 1984). As Linares and colleagues' (2001) work clearly demonstrates, exposure to dangerous neighborhood circumstances is distressing for mothers. Mothers who are harsh with their young children also may be less able to regulate their own emotional reactivity in response to dangerous neighborhood events. Consequently, the effects of harsh parenting may be exacerbated under conditions of heightened neighborhood danger because children receive an *amplified dose* of exposure to negative events. That is, harsh parenting increases children's risk for internalizing problems especially when mothers' are in a heightened state of alert; mothers' more frequently react to children with harsh parenting and provide children with more distressed social referencing cues. The combination of exposure to both harsh parenting and neighborhood danger on children's internalizing problems may not be additive, but exponential. The association between harsh parenting and internalizing and externalizing problems was hypothesized to be amplified as neighborhood danger increases.

Regarding externalizing problems, neighborhood danger and harsh parenting may interact in two different ways. Since dangerous and disadvantaged neighborhoods provide multiple models of antisocial and externalizing behavior, a ceiling effect may be encountered such that at elevated levels of neighborhood danger harsh parenting has little effect on children's externalizing problems. Independently, neighborhood danger or harsh parenting may increase externalizing problems, but exposure to one or the other may be sufficient. In other words, high levels of neighborhood danger may attenuate the link between harsh parenting and externalizing problems because behavior problems are already elevated. Alternatively, exposure to multiple models of antisocial and externalizing behavior may reinforce one another. Independently, neighborhood danger or harsh parenting may only modestly increase externalizing problems, but exposure to both may be more powerful than the combined additive effects. Highly dangerous neighborhoods may amplify the expected association between harsh parenting and children's externalizing problems. Thus, we hypothesize that neighborhood danger will moderate the association between harsh parenting and externalizing problems, but we were unsure whether the association will be attenuated or amplified as neighborhood danger increases.

In addition to neighborhood danger, neighborhood belongingness was expected to moderate the association between harsh parenting and children's problem behaviors. Although neighborhood belongingness is not a measure of neighborhood disadvantage per se, a strong sense of belongingness and connectedness may be an important source of social support for mothers residing in a dangerous neighborhood. While support received from neighbors may intuitively be expected to have protective benefits for parents and children, other parents residing in disadvantaged neighborhoods also are likely to use harsh and unresponsive parenting (Evans, 2006). As a result, strong connections with neighbors may support parents' use of harsh disciplinary practices. Moreover, strong neighborhood connections may increase children's exposure to other parents who use harsh parenting practices and exposure to other children who experience harsh parenting. Thus, the association between

harsh parenting and internalizing and externalizing problems was hypothesized to be amplified as mothers' sense of identity and belongingness to the neighborhood increases.

To summarize, the overarching goal of the present study is to conduct a downward extension and expansion of research on neighborhood effects into the toddler period by considering whether neighborhood disadvantage (i.e., neighborhood danger and neighborhood belongingness) and harsh parenting directly and interactively influence toddler-aged children's levels of internalizing and externalizing problems. Because internalizing and externalizing problems can be strongly correlated in early childhood, we first estimated the direct and interactive effects of neighborhood disadvantage and harsh parenting on variance *common* to children's internalizing and externalizing problems using a total problem behavior score. Second, the co-variation of internalizing and externalizing problems was statistically controlled to predict variance *unique* to internalizing or externalizing problems. Analyses predicting common variance will determine whether harsh parenting and neighborhood disadvantage contribute to the development of behavior problems generally, whereas analyses predicting variance unique to internalizing and externalizing problems will determine whether harsh parenting and neighborhood disadvantage contribute to the development of specific types of problem behavior.

## Method

### Sample

Fifty-five mothers with children enrolled in Head Start and who had a 2-year-old child participated in the present study. All participating families resided in the New Orleans area and participated before Hurricane Katrina struck the Gulf Coast. Participating mothers averaged 26.32 years of age ( $SD = 5.13$ ) and children averaged 2.03 years of age. Participants were African-American (83.6%), White, (14.5%), or Middle Eastern (1.9%). Of the 2-year old children assessed, 63.6% were female. On average, mothers had three children ( $SD = 1.32$ ) and each household supported 5 people. Sixty percent of mothers had graduated high school and 65.5% were unmarried at the time of the interview. Families were very poor, with an average annual income of \$12,582 ( $SD = \$9,627$ ) and an average per capita income of \$2,801.

### Procedures

Upon approval of the Institutional Review Board, mothers and children were recruited when mothers sought to enroll one of their older children in Head Start. All mothers enrolling children into Head Start completed an eligibility screener and mothers with a child that would turn 2 years of age between September, 2003 and September, 2004 were eligible to participate. Of the 337 families screened, 21% were eligible for participation ( $n = 77$ ); 97% of those families were interested in participating and 71% actually participated ( $n = 55$ ). Families became more difficult to contact as the time lag from recruitment to participation increased, which was the predominant reason why families who were interested initially did not participate in the study. All interviews took place in mothers' home or at an alternate place of their choice (e.g. Head Start center) and lasted about two hours. Mothers received a \$50 gift certificate to a local grocery or discount store for completing the interview and children received a small toy worth \$10.

The interview began with mothers and children completing a set of structured interactional tasks. Tasks included both child only and mother-child interactional activities. Relevant to the present study, mothers and children completed a 5-minute clean up activity at the end of the hour long assessment. Mothers and children were given with a bin filled with toys and told to play with all of the toys in the bin. The toys included: a Mr. Potato Head, bug beads,

stackable cups, and plastic musical instruments. After playing for 5 minutes, interviewers returned to the play area and played with the mothers and children long enough to create a standard mess for children to clean. Interviewers then informed mothers that children had to clean up all of the toys on their own, but mothers could offer any necessary assistance.

After the clean-up task, mothers completed a series of questionnaires, some of which included demographic information and questions about characteristics of their neighborhood as well as their children's behavior problems. Interviewers offered mothers' assistance completing the questionnaires and questions were read aloud when necessary.

Later, trained observers used the Mother-Child Interactional Coding System (MCICS; Sohr-Preston & Scaramella, 2003) to code mothers' parenting behaviors observed during the clean-up activity. All coding of these observational tasks was completed using the computerized Observational Coding System (OCS; Triangle Research Collaborative, 2003). Coders marked each occurrence of parenting behaviors into a time-stamped computer file as they occurred. Prior to rating interactions, coders received 40 hours of training and had to pass a written examination. Once coders achieved a minimum of 70% agreement with the same standard coder and a score of 85% or higher on the exam, they were permitted to code. To measure consistency across raters, two raters coded 25% of all videotaped interactions and coders were blind to all interactions that were double coded. Inter-rater reliability was estimated using Cohen's kappa. Inter-rater reliability was excellent across all behaviors coded (average:  $k = .75$ ) and the two behaviors used to measure harsh parenting in the present study (average  $k = .77$ ).

## Measures

**Neighborhood danger**—Mothers' reports on the *Me & My Neighborhood Questionnaire* (Pittsburgh Youth Study, 1991) were used to create the neighborhood danger and neighborhood belongingness measures. To measure neighborhood danger, mothers completed 20 items regarding how often dangerous and risky events occurred during the past year. Nine of the 20 items described events that were neighborhood specific (i.e., "You hear neighbors complaining about crime in your neighborhood," "You carry a gun or knife for safety," "You see or hear about a shooting near your home," "You see strangers drunk or high near your home," "A gang fight occurs near your home," "People in your neighborhood complain about being harassed by the police," "You see cars speeding or driving dangerously on your street," "You see people dealing drugs near your homes," "You hear adults arguing loudly on your street."). The 11 other items reflected an awareness of dangerous and risky events that may have happened to people participants knew but that may not have occurred in the neighborhood (e.g., "A friend carries a gun or knife for safety," "Someone you know got arrested or sent to jail."). In order to measure the number of dangerous events occurring within the neighborhood, a neighborhood danger index was created using only the 9 neighborhood-specific items. Events were initially rated on a 4-point Likert scale (0 = *never*, 1 = *once*, 2 = *a few times*, and 3 = *a lot*). However, because less severe events (e.g., "Neighbors arguing loudly.") may occur more frequently than more severe events (e.g., "A family member was stabbed or shot."), an index of *neighborhood danger* was calculated as the number of events that mothers reported occurring at least once (i.e., count of all items rated 1 or higher). This index reduces the likelihood that families experiencing less frequent, but more severe events score higher than families who experienced more dangerous, but less frequent, events. Mothers reported an average of 3.56 events ( $SD = 2.78$ ;  $\alpha = .84$ ; range 0 – 9); higher scores reflect exposure to a greater variety of dangerous events within the neighborhood during the past year.

**Neighborhood belongingness**—The belongingness subscale from the *Me & My Neighborhood Questionnaire* was used to measure mothers' sense of neighborhood belongingness. Mothers read each of the 5 items and evaluated how much each item described their overall sense of connectedness and support with their neighbors and neighborhood. Items were rated on a 7-point Likert scale (1 = *not at all true*, 7 = *very true*). Items were: "The friendships and connections I have with people in my neighborhood mean a lot to me," "The neighborhood I live in is a big part of who I am," "I feel loyal to the people in my neighborhood," "I think of myself as the same as the people who live in my neighborhood," and "Living in my neighborhood gives me a feeling of belonging." Items were coded so that high scores indicated more neighborhood belongingness and connectedness. *Neighborhood belongingness* scores were computed as the mean of the 5 items ( $\alpha = .81$ ).

**Harsh parenting**—Harsh parenting was defined as mothers' behavioral responses to children that were emotionally negative and behaviorally controlling. Observational ratings of mothers' use of two harsh parenting behaviors during the clean-up task were used. Observers marked each time mothers' used negative physical behaviors and restrictive commands. Negative physical behaviors were defined as any painful, harsh, intrusive, or controlling (e.g., slaps or sharp pulls) physical contacts initiated by mothers. Restrictive commands were verbal statements instructing children what not to do or limiting children's activities.

Coders marked the occurrence of each of these behaviors in real time. Rate-per-minute scores were created to measure the frequency with which mothers used harsh parenting behaviors each minute. Mothers used negative physical behaviors ( $M = 2.38$ ;  $SD = 6.68$ ;  $range = 0 - 38$ ) less frequently than restrictive commands ( $M = 5.42$ ;  $SD = 3.95$ ;  $range = 0 - 17$ ). A harsh parenting rate-per-minute score was created by summing the 2 parenting codes and dividing the score by the length of the task in minutes (i.e., 5 minutes). Overall, mothers averaged 2.18 ( $SD = 1.58$ ) harsh parenting behaviors per minute or about 11 harsh parenting behaviors during the entire 5-minute task. Because this score was highly kurtotic (4.25), a log transformed harsh parenting score was used in all analyses.

**Externalizing behavior problems**—The externalizing subscale derived from the *Child Behavior Checklist 1½ to 5* (CBCL; Achenbach & Rescorla, 2000) was used to measure mothers' perceptions of their children's externalizing behavior problems at age 2. Mothers rated the 26 externalizing items on a 3-point Likert scale ranging from *not true* (scored 0) to *very true* (scored 2), indicating how much each statement described their children during the past 2 months. *Externalizing behavior problems* scores were computed by summing all items ( $\alpha = .90$ ).

**Internalizing behavior problems**—The internalizing subscale from the CBCL was used to measure internalizing problems. Mothers rated 25 items in terms of how much the statement reflected children's behavior during the past 2 months. Items were rated on a 3-point Likert scale ranging from not true (0) to very true (2). *Internalizing behavior problems* scores were created by summing all items ( $\alpha = .86$ ).

**Total problem behaviors**—A total problem behaviors score was computed by summing the 51 items used to create the internalizing and externalizing subscales ( $\alpha = .93$ ).

## Results

### Data Analytic Plan

The first step in testing hypotheses was to correlate all study constructs to ensure that the variables were associated in the expected directions. Next, separate regression equations were computed to estimate the direct and interactive effect of harsh parenting and neighborhood disadvantage (i.e., neighborhood danger or belongingness) on levels of total problem behaviors, internalizing problems and externalizing problems. After centering all variables, hierarchical regression equations were computed. In the first set of analyses, levels of total problem behaviors were estimated. In the first step of the equation the main effects of harsh parenting and neighborhood (either danger or belongingness) were entered. The second step tested the interaction between harsh parenting and neighborhood characteristics controlling for main effects. In the second set of analyses, the co-variation between internalizing and externalizing behavior problems (i.e., internalizing problems were regressed on externalizing problems, and vice-versa) were controlled to ensure that we were predicting unique rather than common variance (e.g., Barber, 1996). The second step estimated the main effects of harsh parenting and neighborhood (either danger or belongingness) controlling for the co-variation between internalizing and externalizing problems. The third step tested the interaction between harsh parenting and neighborhood characteristics controlling for main effects and co-variation. In all models, a statistically significant interaction term supports the moderation hypothesis.

### Correlational Analyses

Correlations among all study constructs provided initial support for the main effect hypotheses. As shown in Table 1, harsh parenting was not significantly associated with neighborhood danger or belongingness. Both elevated neighborhood danger and harsh parenting, but not belongingness, were significantly associated with higher levels of total problems, internalizing problems and externalizing problems. Consistent with previous studies (e.g., Barber, 1996; McCartney et al., 2004), internalizing and externalizing problems were strongly correlated. Given preliminary support for the main effect hypotheses, the next step was to estimate the regression equations.

### Total Problem Behaviors

First, the main and moderating effects of neighborhood danger were estimated (see Table 2, Panel A). In the first step of the equation, harsh parenting and neighborhood danger were entered, both main effects were statistically significant and the  $R^2$  associated with the step was statistically significant (.28;  $F = 9.22$ ;  $p < .01$ ). The Harsh Parenting X Neighborhood Danger interaction term added in the second step of the equation was not significant.

Next, the model was re-estimated considering the influence of neighborhood belongingness. The beta associated with harsh parenting was statistically significant (.33;  $p < .01$ ; see Table 2, Panel B), although the amount of variance explained by the step was only marginally significant. The Harsh Parenting X Neighborhood Belongingness interaction term added in the second step of the equation was not significant.

### Internalizing Problems

With regard to internalizing problems, the main and moderating effects of neighborhood danger (see Table 2, Panel A) were considered first. After controlling for externalizing problems, neither the main effect of neighborhood danger nor harsh parenting were statistically significant. The Harsh Parenting X Neighborhood Danger interaction term added in the second step was statistically significant (see Table 2, Panel A). The interaction term was decomposed by calculating the simple slopes of the association between harsh



parenting and internalizing problems at 1 standard deviation above and below the mean of neighborhood danger (Cohen, Cohen, Aiken & West, 2003). In other words, the regression equation was used to evaluate the association between harsh parenting and internalizing problems at high and low levels of neighborhood danger. A graphical representation of the interaction is depicted in Figure 1. Harsh parenting became more strongly associated with internalizing problems as neighborhood danger increased. Harsher parenting was associated with more internalizing problems at high ( $b = 4.33$ ;  $SE = 1.79$ ;  $p = .02$ ) but not at low ( $b = -3.17$ ;  $SE = 2.03$ ;  $p = .12$ ) levels of neighborhood danger.

Next, neighborhood belongingness replaced neighborhood danger in the model to test whether neighborhood belongingness had a main effect on internalizing problems or moderated the association between harsh parenting and children's internalizing problems. As shown in Table 2, Panel B, after controlling for externalizing problems, there were no main effects of harsh parenting or neighborhood belongingness, and the Harsh Parenting X Neighborhood Belongingness interaction term was not significant.

### Externalizing Problems

In the analysis of neighborhood danger (see Table 2, Panel A), after controlling for the covariation between internalizing and externalizing problems, neither of the main effects were statistically significant. The Harsh Parenting  $\times$  Neighborhood Danger interaction term was only marginally statistically significant (Table 2, Panel A).

Finally, neighborhood belongingness replaced neighborhood danger as the dependent variable (see Table 2, Panel B). After controlling for internalizing problems, the main effects of harsh parenting and neighborhood belongingness were not statistically significant and the Harsh Parenting X Neighborhood Belongingness interaction was only marginally statistically significant.

### Discussion

Both harsh parenting and neighborhood disadvantage appear to significantly increase children's risk for problem behaviors during middle childhood and adolescence, but few studies have considered whether neighborhood characteristics moderate the links between parenting and behavior problems during early childhood. In the current study, only neighborhood danger moderated links between harsh parenting and children's behavior problems, and the significant moderation effect was limited to internalizing behavior problems. The two characteristics of neighborhood disadvantage considered in the present study, dangerousness and belongingness, were unrelated, suggesting that mothers can feel just as connected to their neighborhoods in more dangerous neighborhoods as in less dangerous neighborhoods. The results for neighborhood danger will be discussed before the results for neighborhood belongingness.

Levels of neighborhood danger reported in the present sample were not trivial. Mothers reported an average of 3.5 dangerous events during the past year (e.g., witnessing drug deals, carrying a gun or knife for safety, witnessing a shooting, or seeing neighbors drunk or high); thus, mean levels of danger represent neighborhood contexts with meaningfully elevated levels of danger. Statistically significant or marginally significant differences in the strength of the association between harsh parenting and internalizing or externalizing problems emerged for levels of neighborhood danger. Harsh parenting was more strongly linked to internalizing problems with increasing levels of danger. Quite possibly, high levels of neighborhood danger create an environment in which mothers are constantly in an alert or anxious state. Low levels of harsh parenting may reduce children's anxiety, but high levels of harsh parenting may maintain or amplify children's anxiety perhaps because children are

exposed to more anxiety provoking events both within and outside the home. Within highly stressful and anxiety provoking contexts, like dangerous neighborhoods or violent communities (e.g., Linares, et al., 2001), variability in exposure to harsh parenting may be more strongly linked to children's internalizing problems than in less stressful contexts.

In addition to level of dangerousness within the neighborhood, mothers' sense of belongingness and connection to the neighborhood was expected to moderate links between parenting and children's problem behaviors. Silk and colleagues (2004) found that neighborhood cohesion buffered the impact of mother-reported harsh parenting on first and second grade children's externalizing problems. In contrast, we argued that mothers who identified with their neighbors in a more disadvantaged neighborhood may amplify children's risk for problem behaviors. For instance, having close relationships with neighbors who encourage harsh parenting may increase children's exposure to other adults who use and reinforce similarly harsh parenting practices. No support for this expectation emerged.

### **Common versus Unique Variance Associated with Problem Behaviors**

One important contribution of the present study is that we considered both the common and unique variance associated with problem behaviors. Because externalizing and internalizing problems seem to co-occur during early childhood (e.g., Gilliom & Shaw, 2004), estimating internalizing and externalizing problems as distinct dependent variables, without controlling for the co-variation between the scores, may predict the variance common to both types of problem behaviors. In order to address this issue, we estimated models targeting common variance using a total problem behavior score, and models targeting unique variance by statistically controlling for the co-variation between internalizing and externalizing problems.

These two procedures yielded distinct results with important developmental implications. First, when considering common variance in problem behaviors, both level of neighborhood danger and exposure to harsher parenting were directly and uniquely associated with higher levels of problem behaviors. Very few studies consider the impact of neighborhood danger on children's problem behaviors during the toddler period and these results indicate that level of dangerousness can negatively impact children as young as age 2. Second, predicting only common variance and not the variance unique to internalizing or externalizing problems researchers makes it very difficult to identify the processes by which children develop specific problem behaviors. The results of the current study suggest that harsher parenting within the context of a dangerous neighborhood may increase children's risk for internalizing problems specifically rather than undifferentiated problem behaviors.

### **Strengths and Limitations**

The present study has a number of strengths. First, measures of parenting were based on the rates of observed behaviors and did not rely on mothers' parenting perceptions or observer ratings of harshness. The use of observer ratings increases confidence that the findings are not simply due to common method variance or mothers' own perceptual biases. Second, parenting and neighborhood effects on children's problem behavior were examined at a younger age than is typically studied. Third, analyses tested associations with both internalizing and externalizing behavior. Studies considering the impact of parenting and neighborhood effects on children's problem behaviors tend to limit their focus to externalizing behaviors (see Caughy, Nettles, & O'Campo, 2008 for an important exception). Finally, the sample included toddler-aged boys and girls.

Despite these strengths, this study is not without limitations. First, the small sample size decreases the likelihood of finding statistically significant interaction effects. Finding statistically significant interactions with a small sample requires a large and robust effect (Cohen et al., 2003; McClelland & Judd, 1993). Second, a single source of information was used for each construct. Increasing the number of indicators used to create each construct may have increased the variability associated with each construct. Third, the sample is very low income, predominantly African-American, and quite homogenous. Future studies are clearly needed which include greater variability in neighborhood characteristics. Fourth, neighborhood danger was measured from mothers' self-reports of the events which occurred in the neighborhood during the past year. Adding other family member reports of the dangerous events and official police reports would clearly strengthen our measure of neighborhood danger. Although we have emphasized neighborhood characteristics as moderator of harsh parenting, moderation is often symmetrical (Sentse & Laird, in press), and these data also provide evidence that harsh parenting moderates the association between neighborhood characteristics and children's problem behaviors (e.g., Silk, et al., 2004). Finally, replication is needed. Few studies consider how neighborhood may moderate the impact of parenting on children's adjustment during early childhood; while preliminary, these results suggest that the impact of neighborhood on children's adjustment is not trivial.

### Clinical Implications

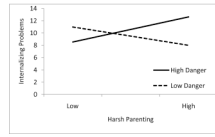
The current study has clear clinical implications. Results provide strong evidence that harsh parenting and mothers' perceptions of neighborhood danger were associated with higher levels problem behaviors generally and that neighborhood danger exacerbates the effect of harsh parenting on internalizing problems specifically. Clinicians may need to be more attentive to the effects of parenting and neighborhood characteristics on internalizing problems during early childhood and training programs that de-emphasize harsh parenting may be particularly important for parents residing in dangerous neighborhoods. Consistent with this expectation, Gross and colleagues (2009) randomly assigned families residing in dangerous neighborhoods to a treatment or control condition and implemented an intervention aimed at improving parenting skills. One year later, children from the treatment group demonstrated significantly fewer behaviors problem than control children. Similarly, Dishion and colleagues (2008) randomly assigned over 700 low income at-risk families to a treatment or control condition and treatment families received parenting training, improving parenting resulted in significant reductions in externalizing problems from child age 2 to 4. Both of these studies demonstrate that interventions designed to improve parenting can overcome some of the deleterious effects of residing in a dangerous neighborhood. Additional work is clearly needed that targets parenting practices which may influence children's risk for developing internalizing problems (e.g., Shaw, Connell, Dishion, Wilson, & Gardner, 2009).

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**Figure 1.** Neighborhood danger as a moderator of the association between harsh parenting and the level of children’s internalizing behavior problems.

Table 1

Descriptive Statistics and Correlations among Neighborhood Disadvantage Indicators, Harsh Parenting, and Child Problem Behaviors Scores

	1	2	3	4	5	M	SD
1. Neighborhood danger						3.56	2.78
2. Neighborhood belongingness	-.23 <sup>+</sup>					3.14	1.62
3. Harsh parenting	.14	.01				1.05	0.47
4. Total problem behaviors	.46**	-.07	.31*			25.51	14.21
5. Internalizing problems	.42**	-.07	.29*	.92**		10.31	6.67
6. Externalizing problems	.44**	-.06	.29*	.95**	.75**	15.20	8.52

Note:

+  $p < .10$ ;\*  $p < .05$ ;\*\*  $p < .01$ .

Table 2

Results of the Regression Analysis Estimating Direct and Interactive Effects of Harsh Parenting and Neighborhood Danger and Belongingness on Total Problems, Internalizing and Externalizing Problems

	Total Problem Behaviors			Internalizing Problems			Externalizing Problems		
	$\Delta R^2$	$F_{ch}$	$b$	$\Delta R^2$	$F_{ch}$	$b$	$\Delta R^2$	$F_{ch}$	$b$
Panel A: Neighborhood Danger									
Step 1:	---	---	---	.56	65.83**	---	.56	65.83**	---
Externalizing/Internalizing Problems			---			.68**			.71**
Step 2	.28	9.72**		.02	0.90		.03	0.22	
Harsh Parenting – log transformed			.25*			.04			.10
Neighborhood Danger			.40**			.08			.15
Step 3	.01	.80		.06	7.28**		.03	3.35+	
Harsh Parenting $\times$ Danger						.24**			-.17 <sup>+</sup>
Total $R^2$ :	.29			.64			.62		
Panel B: Neighborhood Belongingness									
Step 1	---	---	---	.56	66.59**	---	.56	66.59**	---
Externalizing/Internalizing Problems			---			.74**			.73**
Step 2	.10	2.87 <sup>+</sup>		.01	0.38		.01	0.35	
Harsh Parenting – log transformed			.33*			.04			.12
Neighborhood Belongingness			-.08			-.01			-.03
Step 3	.00	.18		.02	2.10		.02	2.92 <sup>+</sup>	
Harsh Parenting $\times$ Belongingness			.06			-.14			.16 <sup>+</sup>
Total $R^2$ :	.10			.59			.59		

Note:

<sup>+</sup>  $p < .10$ ,

\*  $p < .05$ ,



\*\*  
 $p < .01$ .

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